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USSR WORK ON LYSOZYME

Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii,  
No 6, Moscow,  
Jun 1953, pp 83-87

A. A. Yefremenko

Lysozyme was discovered by P. N. Lashchenkov in 1909, i. e., 13 years before it was described by Fleming. Many foreign investigators, including Fleming himself, who referred to Lashchenkov as one of his precursors, have recognized this fact.

Research on lysozyme has been extended considerably in the USSR during the past 20 years. USSR scientists have carried out many-sided studies on the nature and properties of lysozyme. At Z. V. Yermol'yeva's laboratory, perfected methods of obtaining lysozyme preparations have been developed. The presence of lysozyme in many liquids and tissues of the body was established. It was also established that lysozyme is contained in many plants, e. g., radish, horse-radish, and cabbage.

At Yermol'yeva's initiative, USSR clinical investigators were the first to apply lysozyme preparations in medical practice. There has been extensive work on the use of lysozyme for the treatment of infectious diseases in which the therapeutic agent can be made to act directly on the causative factor of the disease.

In 1934, Yermol'yeva, Buyanovskaya, and Mayranovskiy indicated that application of lysozyme yielded good results in the treatment of progressive ulceration of the cornea [*ulcus serpens corneae*].

The effectiveness of lysozyme has been widely investigated in otolaryngological, ophthalmological, and stomatological practice. The investigators working with lysozyme have arrived at the conclusions that "lysozyme in the majority of cases exerts a favorable effect" (Cutkin, 1935), that "it is a valuable therapeutic agent" (Varshavskaya), and that "lysozyme is harmless and its application in medical practice is indicated" (Petrov, 1952).

Lysozyme was applied with equal success in surgical practice. The treatment of phlegmona, abscesses, purulent pleurites, fistulas, and other conditions with lysozyme accelerated the elimination of pus and stimulated granulation (Ponomareva, 1940).

Many investigators have used lysozyme in pediatric practice for the treatment of children's diarrheas. They noted that the incidence of diseases of this type among children was lowered by the use of lysozyme (Voronova, 1941).

Successful application of lysozyme in various dermatoses has been reported by Kharif (1936).

Lysozyme has also been tested in veterinary practice. Nikol'skiy (1939), who had used this bactericidal agent to treat purulent infected wounds and coli-bacillosis of young calves, wrote that "recovery was rapid and lasting, and recurrences were not observed."

Lysozyme has also been found useful on farms. For instance, it has been used to increase the general resistance of chicks (Vyshipan, 1938).

As has already been noted, the priority in the application of lysozyme for everyday needs of the medical practice belongs to the USSR. Data of USSR investigators on this subject are quoted by many foreign scientists. Kafilish

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(1948), mentions the highly favorable results obtained in the USSR in the practical application of lysozyme at the clinic for the therapy of a number of diseases.

During recent years, because some birds (ducks and geese) are resistant to infection with tuberculosis, USSR investigators, at the initiative of Yermol'yeva, have attempted to isolate from the organs and tissues of these birds, new substances active with respect to pathogenic microorganisms. Work along these lines is in accordance with the tendency of USSR medicine to use for therapeutic purposes factors and mechanisms which are typical of the organism in its normal physiological state. Subsequently to the work mentioned above, the organs of animals which are still less susceptible to tuberculosis infection were subjected to investigation. As a result of investigations of this type, drugs were obtained (e.g., ekmolin) which proved to be effective with respect to the causative factors of bacterial infections (i.e., typhoid, paratyphoids A and B, Grigor'yev-Shiga dysentery, Flexner dysentery, diphtheria, etc.), and of virus infections (e. g., influenza of the A type).

Use of ekmolin for the prophylaxis of influenza (Lukashevich and Zak) resulted in lowering the incidence of influenza by a factor on 3.5 in those treated as compared with persons who were not treated. Ekmolin also proved to be a valuable therapeutic agent.

Yermol'yeva and other USSR investigators deserve credit for originally introducing into medical practice bactericidal substances isolated from the animal organism (lysozyme, ekmolin, etc.).

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